

**Notice of Allowability**

Application No.

10/087,132

Examiner

Dmitry Levitan

Applicant(s)

BISHARD, CLINT J.

Art Unit

2616

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/20/07.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other Attachment A.

Amendment, filed 9/18/07 has been entered.

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with P. Ditthavong on 1/09/08.

The application has been amended as follows:

Claims 1-20 have been amended per Attachment A.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to be 'DL' followed by a stylized name.

Dmitry Levitan  
Primary Examiner  
Art Unit 2616

**DMITRY LEVITAN  
PRIMARY EXAMINER**

## Attachment A.

### AMENDMENT AND PRESENTATION OF CLAIMS

1. (Currently Amended) A queuing congestion device to provide congestion management at an egress port of a packet switch, the queuing congestion mechanism comprising:
  - a first queue having an input, an output, and a capacity, the first queue operable to receive packets of information of a first type at its input that are destined to be communicated to the egress port through its output;
  - a second queue having an input, an output, and a capacity, the second queue operable to receive packets of information of a second type at its input that are destined to be communicated to the egress port through its output;
  - a third queue having an input, an output, and a capacity, the third queue operable to receive packets of information of a third type at its input that are destined to be communicated to the egress port through its output, wherein the second queue has a priority intermediate to a priority of the first queue and a priority of the third queue;
  - a scheduler operable to receive the packets of information from the output of the first queue, the output of the second queue, and the output of the third queue, and to communicate the packets of information to the egress port of the packet switch based on a schedule; and
  - a queue shaper operable to set an adjustable rate in which the packets of information of the third queue are communicated to the scheduler, wherein a discard policy is

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enabled for the third queue based on the loading of the capacity of the second queue.

2. (Previously Presented) The queuing congestion device of Claim 1, wherein the adjustable rate is controlled by a loading of the capacity of the second queue.

3. (Previously Presented) The queuing congestion device of Claim 2, wherein a discard policy is enabled for the second queue based on the loading of the capacity of the second queue.

4. (Previously Presented) The queuing congestion device of Claim 3, wherein a discard policy is enabled for the first queue based on the loading of the capacity of the second queue.

5. (Currently Amended) The queuing congestion device of Claim 1, wherein the priority of the first queue is assigned a first priority, the second queue is assigned a second priority that is a lower priority than the first priority, and is higher than the priority of the third queue is assigned a third priority that is a lower priority than both the second priority and the third priority.

6. (Previously Presented) The queuing congestion device of Claim 5, wherein the scheduler is a strict scheduler and the schedule is determined by priorities of the queues.

7. (Previously Presented) The queuing congestion device of Claim 5, wherein the scheduler is a weighted fair queuing scheduler and the schedule is determined by weighting the priorities of the queues.

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8. (Previously Presented) The queuing congestion device of Claim 1, wherein each queue corresponds to a service category queue.
9. (Previously Presented) The queuing congestion device of Claim 1, wherein the packet switch is an ATM switch of an ATM network.
10. (Previously Presented) The queuing congestion device of Claim 1, wherein the packet switch is an IP switch of an IP network.
11. (Previously Presented) The queuing congestion device of Claim 1, wherein the packet switch is a frame relay switch of a frame relay network.
12. (Previously Presented) The queuing congestion device of Claim 1, wherein the packet switch is an MPLS switch of an MPLS network.
13. (Previously Presented) The queuing congestion device of Claim 1, wherein the packet switch is an Ethernet switch of an Ethernet network.
14. (Currently Amended) A packet switch with at least one queuing congestion mechanism for use in a packet network that includes a plurality of packet switches in communication through a plurality of telecommunications links, the packet switch comprising:

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a plurality of ingress ports, each of the plurality of ingress ports operable to receive packets of information from one of the plurality of telecommunications links of the packet network;

a plurality of egress ports, each of the plurality of egress ports operable to communicate packets of information to one of the plurality of telecommunications links of the packet network;

a switch matrix operable to receive packets of information from the plurality of ingress ports, to perform packet switching on the packets of information, and to communicate the packets of information to a designated one of the plurality of egress ports; and

at least one queuing congestion mechanism operable to provide congestion management at one of the plurality of egress ports, the congestion mechanism including:

a first queue having an input, an output, and a capacity, the first queue operable to receive packets of information of a first type at its input that are destined to be communicated to the egress port through its output,

a second queue having an input, an output, and a capacity, the second queue operable to receive packets of information of a second type at its input that are destined to be communicated to the egress port through its output,

a third queue having an input, an output, and a capacity, the third queue operable to receive packets of information of a third type at its input that are destined to be communicated to the egress port through its output, wherein the second queue has a priority intermediate to a priority of the first queue and a priority of the third queue,

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a scheduler operable to receive the packets of information from the output of the first queue, the output of the second queue, and the output of the third queue, and to communicate the packets of information to the egress port of the packet switch based on a schedule, and  
a queue shaper operable to set an adjustable rate in which the packets of information of the third queue are communicated to the scheduler, a discard policy is enabled for the third queue based on the loading of the capacity of the second queue.

15. (Previously Presented) The packet switch of Claim 14, wherein the adjustable rate is controlled by a loading of the capacity of the second queue.

16. (Original) The packet switch of Claim 14, wherein the packet network is an ATM network and the packet switch is an ATM switch.

17. (Original) The packet switch of Claim 14, wherein the packet network is an MPLS network and the packet switch is an MPLS switch.

18. (Currently Amended) A method for performing queuing closed loop congestion management in a packet switch of a packet network, the method comprising:

monitoring the loading of the capacity of a first queue, a second queue, and a third queue to hold packets of information communicated through the packet network, each queue being associated with an egress port of the packet switch and associated



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with different levels of service, wherein the second queue has a priority intermediate to a priority of the first queue and a priority of the third queue;  
setting an adjustable data rate to communicate the packets of information of the third queue to a scheduler, wherein the adjustable data rate is controlled by the loading of the capacity of the second queue;  
scheduling the communication of the packets of information from the first queue, the second queue, and the third queue to the egress port of the packet switch based on a schedule; and  
enabling a discard policy for the third queue based on the loading of the capacity of the second queue.

19. (Previously Presented) The method of Claim 18, further comprising enabling a discard policy for the second queue based on the loading of the capacity of the second queue.

20. (Previously Presented) The method of Claim 18, further comprising enabling a discard policy for the first queue based on the loading of the capacity of the second queue.